Route to reading: Promoting reading through a school library: effects for non-Western migrant students
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informing and supporting parents, school libraries may enhance the students’ reading climate at home, and, thereby, contribute to more reading and a more positive reading attitude. Further research is needed to examine this premise.

Notes
1. See www.debibliotheekopschool.nl
2. According to Statistics Netherlands a person is considered migrant if at least one parent was born outside the Netherlands, with a further distinction being made between migrants originating from Western countries – Europe (excluding Turkey), North America, Oceania, Indonesia, and Japan – and migrants coming from non-Western countries – Turkey, Africa, Latin America, and the rest of Asia (Alders, 2003).
3. In the Netherlands, the central government sets quality standards and learning objectives that apply to all primary schools, including the ones involved in the present study. The Inspectorate of Education monitors the schools’ compliance with central rules and regulations, and the quality of education provided by the schools (Nusche, Braun, Halász, & Santiago, 2014).
4. More information (in Dutch) about the monitor can be found at www.debibliotheekopschool.nl
5. In the monitor, children were also asked to indicate how many books they had themselves, by choosing between five answer categories: ‘0’, ‘1-20’, ‘21-50’, ‘51-100’, and ‘more than 100’. In general, children of the control school had more books at home (Mean = 2.79, SD = .98) than children attending the experimental school (Mean = 2.43, SD = .86). F(1,259) = 9.96, p = .002. As this item refers to the availability of reading materials at home, it can also be considered as a measure of reading climate at home. However, given that the response options substantially differed from the other eight items addressing reading climate at home, we did not consider including this item in the reading climate scale as well. Moreover, we preferred not to include this single item separately in the analyses for the sake of parsimony. Correlation of the item with the reading climate at home scale was r = .26, p = .001.
6. Because of the way the study was designed, with an influx of new subjects and outflow after the final grade during the years the study was in the field, there is no artificial (almost) perfect relationship between ‘time’ and ‘age’. For all children, the time variable indicates the number of months between the date of a measurement occasion and September 2011 (or a later date in case a student entered one of the schools after September 2011), regardless of age. This means, for example, that during the third measurement occasion at the beginning of November 2013, both children aged 8 years and children aged 12 years had been visiting the experimental or control school for 22 months.
7. The results of the multilevel analyses conducted on the data from the AQ are discussed in the text only in order to avoid presenting two tables with outcomes of multilevel analyses on a similar dependent variable (i.e., reading attitude and reading frequency as measured with (a) the MQ and (b) the AQ). We have chosen to present the results of the analyses on data from the MQ in tables, since this instrument was administered during all the waves of our study.
8. Research on effects of survey modes (performed among older respondents, in other settings, and using other measures) comparing paper-based administration methods with online administrations methods has reported somewhat mixed findings (Carini, Hayek, Kuh, Kennedy, & Ouimet, 2003), Hardré, Crowson, and Xie (2010) found that scores of respondents in a paper-based condition were slightly higher than the scores of those in a webbased condition, whereas the opposite was found in a study by Carini et al. (2003). Carini et al. (2003) have indicated that mode effects were generally small, and other studies (Hardré et al., 2007, 2010) found no effect of the administrative method on the reliability of the measures.
ABSTRACT
In the Netherlands, the educational performance of students with a non-Western background lags behind that of native Dutch students, in particular with regard to language ability and reading proficiency. Using a longitudinal design involving an experimental and a control school, the present study examined whether the integration of a library facility in a Dutch primary school’s curriculum leads to better reading and language skills in non-Western migrant students (grades 2 to 6). The results showed a statistically significant positive effect of the school library program on the students’ vocabulary level, with a higher increase in vocabulary test scores over time for the experimental school than for the control school. No effects were found with respect to the students’ reading comprehension and spelling skills. A more optimal implementation of the school library program might well have led to stronger effects.

The importance of good language proficiency and reading ability for participating successfully in modern society has been well established (National Endowment for the Arts [NEA], 2007; Vernooy, 2009). There is no doubt that these skills are crucial for educational success and post-school opportunities (McGeown, Lynne, Griffiths, & Stothard, 2014). To understand and learn the material taught in class, students need good reading comprehension proficiency and an adequate vocabulary (Mullis, Martin, Foy, & Drucker, 2012; van Berkel et al., 2010). Research has shown that children with higher language scores also perform better in other school areas, such as math and general knowledge of the world (Kortlever & Lemmens, 2012), whereas children with language disadvantages often face problems in many school subjects (Prenger, 2005). Poor readers are also more likely to repeat a class and to drop out of high school (NEA, 2007; Vernooy, 2009). Moreover, low-ability readers do less well in the job market: Poor reading proficiency strongly correlates with lower wages, lack of employment, and fewer opportunities for career growth. Good readers, on the other hand, have more financially rewarding jobs and more opportunities for advancement (NEA, 2007). Individuals with better language and reading skills have been shown to be healthier as well, and they are more likely to be socially involved and politically engaged (DeWalt & Hink, 2009; NEA, 2007). In addition, a high literacy rate is of great importance to a country’s economic growth (Coulombe, Tremblay, & Marchand, 2004; Organisation for Economic Co-operation and Development [OECD], 2010).

Obviously, not every child has sufficient language and reading skills. If we consider the situation in the Netherlands, a highly developed Western country, only one-third of third grade students achieve the standard ‘sufficient’ for text comprehension (van Berkel, Krom, Heesters, van der Schoot, & Hemker, 2007), approximately a quarter of the students finish primary education with insufficient technical reading ability1 (Vernooy, 2009), and almost 14% of children aged 15 can be considered low-literate (Kordes, Bolsinova, Limpens, & Stolwijk, 2013), although, internationally, students in Dutch primary schools on average perform pretty well when it comes to reading (Meelissen et al., 2012; Mullis et al., 2012). There are groups of students who in particular experience difficulties in developing good language skills and reading proficiency. An urgent issue in the Netherlands – often observed in Western countries with non-Western migrant groups – providing a case in point is the ethnic inequality in academic achievement (Gijsberts & Iedema, 2012; Schnepf, 2007).

Since the 1960s, people have migrated to the Netherlands in large numbers (Herweijer, 2009). The majority of these immigrants came from the Mediterranean area, mainly from Turkey and from rural areas in Morocco – where Berber is spoken, a non-scripted language –, or came from the former Dutch colonies Surinam and Dutch Antilles – areas where Dutch is still the official language, although a different language is often spoken at home. Many immigrants have settled permanently in the Netherlands with their families (Scheele, 2010; van Elsäcker-Bok, 2002). In 2015, the Netherlands counted more than 2.0 million non-Western migrants2, making up 12.1% of the total

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population. The largest groups were migrants from Turkish, Moroccan, Surinamese, and Antillean origin (Statistics Netherlands, 2015). The migration flows have impacted on the composition of the school populations and recent statistics indicate that, in 2014, nearly 17% of the primary school aged students (4-12 years) had a non-Western ethnic-cultural background. The vast majority of these non-Western migrant children (91.6%) were born in the Netherlands (Statistics Netherlands, 2015).

Studies have clearly shown that, generally speaking, the educational performance of non-Western migrant students falls behind, in particular with regard to Dutch language ability and reading proficiency. This holds true for vocabulary, reading comprehension skills, and spelling skills, but not for their technical reading level (e.g., Appel, Kuiken, & Vermeer, 2001; Bonset & Hoogeveen, 2009, 2012; Driessen & Merry, 2013; Gijsberts & Iedema, 2012; Netten, 2014). The disadvantages of non-Western migrant children are already manifest when entering primary school and continue throughout primary education and beyond, with girls performing better on language than boys (Gijsberts & Iedema, 2012; Herweijer, 2009). Herweijer (2009) has reported that in kindergarten, students with a non-Western background not only lag behind native Dutch children from parents with a secondary or higher education background, but also – albeit to a lesser extent – relative to native Dutch students from low-educated families, who themselves lag behind native Dutch children from higher educated families as well. At the end of primary education, students with a Turkish, Moroccan, and Antillean background have a language disadvantage of approximately two years on average (Herweijer, 2009). Although the school performance of non-Western migrant students has improved over the years, there is still a substantial gap with their native peers (Gijsberts & Iedema, 2012).

In theories about this educational inequality, the academic achievement of migrant students is often linked to family characteristics. In general, non-Western migrant children grow up in families with a relatively weak socio-economic status (SES), as indicated by their lower parental educational level, lower income, and higher unemployment rate relative to native Dutch families (Herweijer, 2009). A weaker SES is, also among native Dutch students, related to lower school performance (Gijsberts & Iedema, 2012; Herweijer, 2009). Furthermore, it has been suggested that non-Western migrant parents often feel less responsible for actively stimulating the cognitive development of their children (Beks & de Natris, 2008), and migrant children are often less likely to be read to, have fewer reading materials at home, and their parents are less inclined to read themselves (de Vries, 2007; Hermans, 2002; Scheele, 2010; van Steensel, 2006).

Another important factor is that children with a non-Western background are often partly or entirely raised in another language than the Dutch language (Scheele, 2010). Being raised in bilingual migrant families is associated with less language input per language, as the time available for language interactions has to be divided over both the first and second language (Scheele, 2010). It has been suggested that competition between the two languages negatively affects the development of bilingual language acquisition. On the other hand, bilingualism has also been reported to come with cognitive advantages such as enhanced metalinguistic awareness and executive control skills, which can support learning a second language (Janssen, Bosman, & Leseman, 2013; Scheele, 2010). Following the interdependence hypothesis (cf. Cummins, 1979, 2000), languages share common underlying proficiencies, consisting of skills related to reading, writing, and speaking, that can be transferred to a second language once acquired in one language (Elbers, 2010; Genesee, Geva, Dressler, & Kamil, 2006). Cummins made a distinction between basic interpersonal communicative skills (BICS) and cognitive academic language proficiency (CALP), which can be considered as informal everyday language and formal language demanded in the classroom, respectively (Elbers, 2010; Kekic, 2012). Research has shown that a lower SES is related to a lower quality and quantity of language input (i.e., less CALP stimulating input), making (native Dutch and migrant) children from low-SES families less well prepared for school (Elbers, 2012; Kekic, 2012). For non-Western migrant children, often growing up in low SES families, a less well developed CALP in the first language hampers CALP in Dutch, which is important for success in school (Kekic, 2012). Given that SES is related to academic language use at home, one may expect that migrant children from families with Dutch as household language – who are more likely to have higher educated parents than children from parents using a non-Dutch language at home (Turkenburg & Gijsberts, 2007) – would perform better at school. In line with this, several Dutch studies involving household language have indicated that usage of a non-Dutch language was negatively related to migrant children’s language and reading test scores, compared to usage of the Dutch language (Hartgers, 2012; Herweijer, 2009), often also, although to a lesser degree, when controlling for confounding factors including parental educational level (Hemker & van Weerden, 2014; van Weerden & Hemker, 2012).

The present study aims to investigate whether language and reading skills of non-Western migrant children can be improved through a school library. In the Netherlands, public libraries often work closely with educational institutions, and several national reading promotion programs have been developed (Bron & Langendonk, 2015; Kasperkowitz, van Tits, & van der Fruh, 2009). Part of this is the Library at School program, started in 2009, which seeks to promote reading among students by creating high quality libraries in schools and improving the collaboration between public libraries and schools (Broekhof, 2015; Bron & Langendonk, 2015). According to recent statistics, 74% of all library organizations participated in this program in 2014, involving 36% of all primary schools (Bron & Langendonk, 2015; van Dam & Heideman, 2015). An important objective of the school library program is improving the students’ language development and reading proficiency (Huysemans, Kleijnjen, Broekhof, & van Dalen, 2013; van Dam & Heideman, 2015). The rationale behind the structural cooperation between public libraries and schools is provided by evidence from studies on the relationship between reading behavior and language and reading skills (Broekhof, 2015), including reading comprehension, vocabulary, grammar, spelling,
and technical reading (Broekhof, 2015; Clark & Douglas, 2011; Gille, Loijens, Noijens, & Zwitser, 2010; Krashen, 2004b; Mol & Bus, 2011a, 2011b; Mullis et al., 2012; NEA, 2007).

Since the 1960s, evidence of the impact school libraries have on student achievement has been accumulating outside the Netherlands (Roberson, Schweinle, & Applin, 2003; Williams, Wavell, & Morrison, 2013). Lance, one of the most prominent researchers in this field, began his studies in the early 1990s. He found in his first study, the so-called Colorado Study, that the size of the school library (in terms of its collection and staff) was positively related to reading test scores of primary and secondary school students, as assessed through the standardized Iowa Test of Basic Skills (ITBS) and Tests of achievement and Proficiency (TAP; Lance, Welborn, & Hamilton-Pennell, 1993). Since then, he and other researchers have begun adding to this work, the majority of the impact studies having been carried out in the United States (Williams et al., 2013). Subsequent studies in Colorado and other American states, as well as research conducted in other countries, such as Australia, England, and Scotland, have consistently shown that school libraries were positively linked to student achievement (Boelens, 2010; Clark, 2010; Hay, 2003; Lonsdale, 2003; Softlink, 2012; Williams & Wavell, 2001; Williams et al., 2013). In many studies, tests were used to assess student achievement (e.g., Colorado Student Assessment Program [CSAP], Pennsylvania System of School Assessment [PSSA], and National Assessment Program – Literacy and Numeracy [NAPLAN]), frequently focusing on the reading subtest – often measuring reading comprehension – and in some cases also on test components covering subjects such as writing, math, and science. Other instruments were used as well, such as surveys, interviews, and focus groups (Williams et al., 2013). Reviews of school library impact studies have clearly identified library features that contribute to higher student achievement, such as large and up-to-date collections, the presence of qualified, full-time school librarians and appropriate support staff, collaboration with teaching colleagues, flexible library access, networked technology, and funding (Kachel, 2013; Lonsdale, 2003; Scholastic, 2008; Williams & Wavell, 2001; Williams et al., 2013).

Dutch research on the effects of school libraries on student achievement is scarce, but also suggests positive outcomes. Recently, Nielsen and Bus (2015) compared 31 schools that had implemented the Dutch national Library at School program with 10 schools that did not take part in this program. Their results indicated that students (fourth and fifth graders) attending the experimental schools achieved higher scores on a reading comprehension test.

Little is known about the effectiveness of school libraries on ethnic minority students in particular, as many impact studies examined children in general and did not explicitly focus on students with a migrant background (Kleijnen, Huysmans, & Elbers, 2015a). Several American studies did control for the students’ racial or ethnic background and found that linkages appeared to persist between attributes of school libraries and higher test scores (on standardized tests, such as the ISAT assessing reading comprehension and vocabulary; Burgin & Bracy, 2003; Lance, Rodney, & Hamilton-Pennell, 2005; Michie & Chaney, 2009), which seems to entail that school libraries’ “success factors” apply to students from various ethnic/racial groups (at least in the context of this research). This corresponds with the findings of Lance and Schwarz (2012) who examined the impact of characteristics of school library programs in Pennsylvania on reading scores of selected student cohorts that tend to experience achievement gaps. Reading ability was assessed through the reading test of the Pennsylvania System of School Assessment (PSSA), consisting of two categories: comprehension and reading skills, and interpretation and analysis of fictional and nonfictional texts (Pennsylvania Department of Education, n.d.). Lance and Schwarz indicated that Hispanic and African American students benefited proportionally more from strong school library programs than did students in general. This suggests that adequate school libraries can contribute to narrow the achievement gap between advantaged and disadvantaged students (Williams et al., 2013).

However, it is not clear whether these findings apply across different educational and cultural contexts. Migrant groups in the Netherlands are not readily comparable with ethnic minorities in a country like the United States. For example, the primary language of the majority of Moroccan-Dutch families is Berber, which, until recently, was a non-scripted language (Scheele, 2010), which is completely different from the situation of Hispanics and African Americans in the United States (Kleijnen, Huysmans, Ligtvoet, & Elbers, 2015b). Moreover, the implementation of school library programs, including the role of the school librarian, can differ across countries (Brabantse Netwerk Bibliotheek, 2013). In line with this, it has been suggested that research carried out outside the Netherlands cannot provide results that are valid one-on-one to the Dutch situation (Veenstra, 1999). In the Netherlands, no studies have been conducted on the effect of school libraries on the school performance of non-Western migrant students in particular. In addition, literature on the role of the home environment, schools, and libraries, which can give more insight into the possible effects of school libraries on these children in the Netherlands, is not consistent (Kleijnen et al., 2015a). Gaps in existing research need to be bridged in order to guide effective policies and practices around reducing educational inequalities through reading promotion.

**PRESENT STUDY**

In the current longitudinal study, involving both an experimental and a control school, we examined whether the integration of a library facility in a Dutch primary school’s curriculum leads to better reading and language skills in students with a non-Western background. We addressed three important aspects of reading and language ability: vocabulary, reading comprehension, and spelling. On average, non-Western migrant students attain lower scores on these aspects than their native Dutch peers, unlike technical reading, and these three elements are (next to writing skills) part of the language element of the Cito-eindtoets, a national test taken at the end of primary school, which plays an important role in determining which secondary education track students...
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will follow (Herweijer, 2009; van Boxtel, Engelen, & de Wijs, 2010). The current study addressed the following research questions:

1. Does a school library have an effect on the vocabulary level of non-Western migrant students?
2. Does a school library have an effect on the reading comprehension skills of non-Western migrant students?
3. Does a school library have an effect on the spelling skills of non-Western migrant students?
4. Are the effects of a school library on the vocabulary, reading comprehension, and spelling skills of non-Western migrant students moderated by gender, age, parental educational level, reading climate at home, and language spoken with parents?

With regard to the first three questions, we hypothesized that the children who attended the experimental school would show more improvement in their vocabulary level, reading comprehension skills, and spelling skills over time than the children visiting the control school, as the library facility (and school libraries in general) was established in the belief that it positively impacts the students’ language and reading skills. Moreover, research has shown that school libraries can contribute to higher reading test scores and that reading behavior, which the school library program seeks to promote, is found to be positively related to vocabulary, reading comprehension, and spelling skills. With respect to the fourth research question, we expected to find that the effects of a school library on the students’ skills differ for categories of gender, parental education level, reading climate at home, and language spoken with parents. In general, boys, children from lower educated parents, less reader-friendly families, and families where less Dutch is spoken at home perform less well in reading and language (De Graaf, De Graaf, & Kraaykamp, 2000; Gijbels & Iedema, 2012; Herweijer, 2009; Kloosterman, Notten, Tolsma, & Kraaykamp, 2011; Meelissen et al., 2012; Mullis et al., 2012; van Weerden & Hemker, 2012). We expected a larger positive change for these groups at the experimental school, given that these students have more to gain and school libraries have been suggested to help closing achievement gaps (Williams et al., 2013).

**METHOD**

**DESIGN**

To answer the research questions, a longitudinal study was conducted, following a quasi-experimental design. Participants were students of two Dutch primary schools: one school with an integrated library facility (i.e., the experimental school) and one school without such a school library (i.e., the control school). Random assignment of participants was not possible due to the “real life” nature of the design. Standardized tests and questionnaires (online and paper versions) were used to gather data over three successive school years (2011/2012, 2012/2013, and 2013/2014). The questionnaires were administered once a year and the tests once or twice a year.

In the first school year, data were collected from students attending grades 2 to 6. These children were also followed during the subsequent school years (excluding those who moved to secondary school or left school for other reasons), as well as children entering second grade and new students who entered (grades 2 to 6 of the) school. For instance, of the 25 experimental students who were administered at least one test in the first school year (2011/2012), 22 were tested again in the second year (2012/2013), and 12 of these students were tested for the third year (2013/2014) as well, whereas 10 experimental students were tested for the first time in 2013/2014 (see Table 1).

The experimental school had a library facility at its disposal, run and facilitated by the public library, with a large, varied, and well sorted collection of reading materials (see also Appendix A). The library provided different types of reading materials such as storybooks, comics, picture books, and non-fiction books, covering a wide variety of themes, with a total collection of approximately 5,400 materials, which is quite large for a Dutch school library. Books were available for all age groups and reading levels. The school library of the experimental school was managed by a reading and media coach (with credentials comparable to those of a teacher-librarian in the Anglo-Saxon world) employed by the public library.

Every three weeks during school hours, children attending the experimental school visited the library with their classmates and teacher to return and borrow books under the guidance of the coach. The reading materials were taken to the classrooms where they would be read during free reading time. The books were not taken home, a decision made by the school management. During the regular class library visits, the students would also, alternately, participate in a one-hour reading promotion lesson with the whole group or complete a digital so-called reading log individually, stating their opinion about the materials they had read. The lessons consisted of several recurring elements, including reading aloud to the children, creating a word web together and students working on processing assignments (i.e., students actively performed tasks related to the lessons’ themes, such as drawing a picture, playing a word game, creating a poster, participating in a quiz, searching for information in books and online, and writing a short article). If we discuss the (effectiveness of the) school library, we basically refer to the whole school library program, including the library visits, the presence of a reading and media coach, the reading promotion lessons, and the reading logs.

| TABLE 1 | NUMBER OF STUDENTS TESTED FOR THE FIRST, SECOND, AND THIRD YEAR, BY SCHOOL AND SCHOOL YEAR |
|------------------|-------------------------------------------------|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| **Experimental school** |          |          |           |          |          |           |          |          |          |          |          |          |
| Tested for the:  |          |          |           |          |          |           |          |          |          |          |          |          |
| first year      | 25   | 26   | 10 | 40 | 13 | 15 |
| second year     | -    | 22   | 18 | -  | 30 | 12 |
| third year      | -    | -    | 12 | -  | -  | 19 |
| **Control school** |          |          |           |          |          |           |          |          |          |          |          |          |

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As in many Dutch schools, books were also present at the control school and used for free reading in class. However, compared to the experimental school, the collection of the control school was smaller, far less varied and up-to-date, less well managed, and in the school’s own possession, with teachers (and not a reading and media coach) being responsible for the book collection. The control school students did not visit the experimental school’s library or the towns’ public library with their class, nor did they participate in a school library program.

There were no major differences between the two schools with respect to language and reading education, except for the school library concept at the experimental school (see also Appendix C). Although Dutch elementary schools are free to shape their curricula, the central government sets quality standards and learning objectives that apply to all primary schools, including the experimental and control school involved in this study. The objectives provide a legal prescription for the skills and knowledge students are expected to have attained at the end of primary education (Nusche, Braun, Halász, & Santiago, 2014). During the school years 2011/2012 - 2013/2014, the experimental and control school mostly used the same (frequently used) methods for language and reading education. In working with the method for vocabulary and spelling, both schools used tablets in grades 2, 3, and 4 in 2013/2014 instead of paper based materials. Furthermore, both schools paid extra attention to low achieving students and high achieving ones. Moreover, at both schools time was spent on reading promotion activities, such as reading aloud to the children, introducing books in class, and reading for pleasure reading in class. When it comes to world orientation subjects (e.g., history and geography), teachers of the experimental school more often read a book aloud in class than control school teachers. The Inspectorate of Education monitors the schools’ compliance with central rules and regulations, and the quality of education provided by the schools (Nusche et al., 2014).

**PROCEDURE**

During all school years, Cito-tests covering vocabulary, reading comprehension skills, and spelling skills were administered to the students, which was part of the student monitoring system used by the schools. These measurements usually took place once or twice a year at both the experimental and control school, often half way through the school year and/or at the end of the school year. The paper-and-pencil tests were completed in class after an instruction provided by the teacher, following the manual of the tests. For the purpose of the present study, the test scores were provided by the schools and, using a coding system that guaranteed anonymity, linked to the questionnaire data of the students and their parents. Parents were informed about the research project and they could notify the principal if they objected to their child’s participation.

In all school years, a student questionnaire was administered to children attending grades 2 to 6 of the experimental or control school, consisting of a national survey on school libraries called the Monitor the Library at School, complemented by an additional questionnaire in the last two school years (see also Appendix B). This happened in April 2012, and in November and December 2012 and 2013, respectively. The students were told in the introductory part of the questionnaire that the survey was not a test and they could ask the teacher for help if they would not understand a question. Most of the experimental school students completed an online version of the survey (95.3%). This happened in groups of up to eight students in a computer room under the guidance of the researcher and/or the reading and media coach and sometimes also a teacher. A few children attending the experimental school (4.7%) filled out a paper version of the survey in the classroom on request of their teacher. At the control school, all student questionnaires were administered in the classrooms under the guidance of the teacher, as this school did not have a separate computer room. On request of the teachers, a paper-and-pencil version of the survey was made widely available for the control school because of the limited number of computers in the classrooms and the limited amount of time available to the teachers to help individual students. In total, at the control school, 16.5% of the student questionnaires were completed online and 83.5% on paper. For this study, the items addressing the students’ reading climate at home were taken from this questionnaire.

A parental questionnaire, designed for our research project, was handed out in April and May 2012 and in November and December 2012 and 2013. In the second and third school year, help was offered to parents who were having trouble with the Dutch language. During planned parent-teacher conferences afternoons and evenings at school, help was provided by a researcher and librarians, including someone who could translate the questionnaire for caretakers with a Moroccan background. For a smaller group of parents no translation could be provided. However, many parents who needed help could understand spoken language, but were not (fully) able to read and understand the written survey, and we had the impression that it was sufficient having someone explaining the questionnaire to them in Dutch. Some parents were also assisted by others, such as an older child, a brother or sister, or a neighbor. During the last school year, parents who had handed in the questionnaire received a €5,- gift card to be spent at a large retail and drugstore chain.

**PARTICIPANTS**

Students of the experimental and control school qualified for participation in the current study if they attended grade 2, 3, 4, 5 or 6 during at least one of the school years 2011/2012 - 2013/2014. Our analyses only included data from non-Western migrant students (following the definition adopted by Statistics Netherlands³). Four children were excluded because of a lack of parental permission. One other student who first visited the experimental school and then the control school during the time span of the study was also excluded from the analyses. The final sample consisted of 129 participants across both schools (experimental school n = 61; control school n = 68), with one to six observations per student on one or more aspects of language and reading.
ability. In total, 1064 student observations were available: 368 for vocabulary, 284 for reading comprehension, and 412 for spelling.

Most observations were from students with a Moroccan background (77.1%). Students from the other three major migrant groups in the Netherlands (Turkish, Surinamese, and Antillean) accounted for 13.6% of the observations, and other non-Western minority students made up the remaining 9.3% of the observations. Compared to the experimental school, the students of the control school less often had a Moroccan background and they were more often from the other non-Western groups. In keeping with national statistics (Statistics Netherlands, 2015), the vast majority of the observations (94.5%) were from students who were born in the Netherlands (i.e., second generation migrants). Western migrants were not included in the study, given the limited number of Western migrant students attending the schools involved in this study, and given that these students are not considered an at-risk group (e.g., in general, their school performance does not lag behind that of native Dutch primary school students; Onderwijs in Cijfers, 2015). Moreover, due to the limited number of native Dutch children attending the experimental school, it was not possible to compare the non-Western migrant students with native Dutch students in this study.

Table 2 presents the characteristics of the sample (i.e., observations) by school and aspect of language and reading ability. At the experimental school 501 observations were available from 61 students and at the control school 563 observations were available from 68 students. The total sample included children aged 7 to 13 years, with a mean age of 9.81 at the experimental school and 9.46 at the control school. At both schools, slightly more girls than boys participated in the study. In total, 520 observations were from boys (48.9%) and 544 from girls (51.1%). The parental educational level score ranged from 0 (no education) to 4 (vocational colleges/university). On average, parents of the experimental school students (1.61) scored lower than those of the control school (2.26), indicating a parental educational level of quite below and slightly above the lower tracks of secondary education, respectively. The mean scores of the experimental and control school students on reading climate at home (2.28 and 2.37, respectively) were not that favorable, considering that a score of 1 indicates the least reader-friendly climate at home and a score of 4 indicates the most reader-friendly climate. Furthermore, most observations were from students who only spoke Dutch with their parents (52.3%). About one third (34.5%) spoke both Dutch and another language, whereas 13.3% only spoke in a non-Dutch language with their parents. Although this order applies to both schools, at the control school, a higher percentage of the students spoke only in Dutch with their parents compared to the other school, whereas relatively more experimental school students used only a non-Dutch language or both Dutch and another language.

The schools’ student observations differed significantly with regard to age, parental educational level, and language spoken with parents. Overall, the students of the experimental school were older than the control school students, $F(1, 1062) = 17.43, p < .001$, and the parents of the experimental school students had a lower educational level than those of the control school students, $F(1, 1062) = 69.17, p < .001$. In general, students attending the experimental school relatively often spoke in a non-Dutch language and in both Dutch and another language with their parents, whereas control school students relatively often spoke only in Dutch, $X^2(2, n = 775) = 40.15, p < .001$. The schools did not differ with regard to gender, $X^2(1, n = 1064) = .01, p = .917$, and reading climate, $F(1, 700) = 2.42, p = .120$. Similar results were found for all three aspects of reading and language ability separately, except that a significant age difference was not present for spelling.

**MEASUREMENTS**

**Reading and language ability.** The reading ability and Dutch language proficiency of the students were measured using tests from the pupil monitoring system devised by Cito, the National Institute for Educational Measurement. This system, which is used by many primary schools, consists of a comprehensive set of coherent paper-and-pencil (and computer-based) nationally standardized tests for longitudinal assessment of a student’s achievement throughout primary
education (Herweijer, 2009; http://www.cito.nl; Moelands, 2010). The tests make it possible to
determine the relative position of students among their peers (compared by grade/group), using
data collected from various subpopulations in a national survey as a frame of reference. Based on
percentiles, five ability levels (A to E) are distinguished. Level A refers to the 25% highest scoring
students, whereas level E refers to the 10% lowest scoring students. Level B and C refer to the 25% students who score just above to substantially above average and just below to substantially below average, respectively. Level D includes the 15% students who score substantially below average (Feenstra, Kamphuis, Kleintjes, & Krom, 2010; Moelands, 2010; Visser, 2013). These levels can be further divided into an ability level value between 0 and 5 with one decimal, with a higher score indicating a higher score on the test (A = 4.5–5, B = 3–3.9, C = 2–2.9, D = 1–1.9, and E = 0–0.9).

For instance, a student who achieves the highest in Level A has an ability level value of 5, and a student who scores high in level C has, for example, a level value of 2.8 (Cijvat & Bloemendaal, 2013; Driestar, n.d.). For our analyses, we used the students’ ability level values (0.0–5.0) on the tests covering vocabulary, reading comprehension, and spelling. Note that these values are relative scores, meaning that the underlying scores differ by grade/group, with, in general, older students achieving higher underlying scores than younger students (Moelands, 2010). The Cito-tests assessing vocabulary, reading comprehension, and spelling have satisfactory reliability (Hollenberg, van der Lubbe, & Sanders, 2011; Toetswijzer, 2015a, 2015b).

**Vocabulary.** The Vocabulary Cito-tests were administered to measure the size of the receptive vocabulary of the children. Cito defines vocabulary as a collection of labels possessed by language users for comprehending and using language (van Berkel et al., 2010). The paper-and-pencil tests consisted of multiple-choice items, in which students were offered words that they had to identify and recognize; they did not have to express themselves in words. The students were presented reading tasks and the test items addressed both the meaning of words (e.g., “What does chatting mean?”) and meaning relations (e.g., “What is the opposite of chaos?”). Children attending grade 2 had to complete 50 tasks, taking ca. 30 to 35 minutes, and the tests for students in grades 3 to 6 contained 70 questions, taking ca. 45 minutes (Cito, 2015; Hollenberg et al., 2011; van Berkel et al., 2010).

**Reading comprehension.** Reading comprehension is concerned with understanding the meaning of written words, sentences, and texts (Aarnoutse & van Leeuwe, 1998). The Cito Reading Comprehension tests were used to determine the reading comprehension level of the students. These multiple choice tests covered a broad range of text types (e.g., informative texts and fiction texts), genres (e.g., narrative, instruction, poem), and exercises (e.g., question about the text and missing parts in text). The paper-and-pencil tests consisted of three modules. All students were first administered the starting module and then they completed either an easier module (S1) or a more difficult module (S2), depending on their score on the starting module. The scores on S1 and S2 can be transposed on the same scale. The modules administered in the second, third and fourth grade contained 25 questions, taking ca. 40 minutes to complete them. The modules meant for children in the fifth and sixth grade contained 30 tasks each, taking ca. 50 minutes (Feenstra et al., 2010; Toetswijzer, 2015a).

**Spelling.** The Cito Spelling tests were used to determine the spelling level of the students. In spelling, the spoken language is converted into graphic symbols using orthographic rules (Aarnoutse & van Leeuwe, 2000; Ehri, 1991). The spelling rules were not explicitly tested, but instead, the students had to show indirectly to what extent they mastered the spelling rules by, for instance, writing down dictated words and trying to recognize an incorrectly spelled word in a group of four words. Every paper-and-pencil test consisted of three modules: a general starting module, an easier follow-up module (S1), and a more difficult follow-up module (S2). Which follow-up module the students got was determined by the students’ score on the starting module. The scores on S1 and S2 can be transposed on the same scale. For grades 2 and 3, each module consisted of 25 tasks; the modules taken in the higher grades contained 30 exercises. Completing a module costed ca. 30 minutes (de Wijs, Kamphuis, Kleintjes, & Tomesen, 2010; Toetswijzer, 2015b).

**Background variables.**

**Age.** The children’s date of birth listed in the student administration of the schools was used to determine the age of the students at the time the tests were administered.

**Gender.** The student administration of the schools indicated whether a student is a boy or a girl.

**Parental educational level.** In the parental questionnaire, respondents were asked to report their own and their partner’s highest completed education level, both in the Netherlands and (if applicable) in the country of origin, by choosing between 10 and 9 answer categories, respectively. These response options were derived from the Survey Integration Ethnic Minorities, a large-scale questionnaire used in the Netherlands addressing the integration of the four largest non-Western migrant groups, and from the Survey Integration New Groups that focuses on new migrant groups (Hilhorst, 2010). For the final parental education level variable, which ranged from a score of 0 to 4, the highest completed education level of either parent (or single parent) was assigned to the following five categories: (a) no education, (b) primary education, (c) lbo/mavo (i.e., junior vocational training/junior general secondary education), (d) havo/vwo/mbo (i.e., senior general secondary education/pre-university education/senior vocational training), and (e) hbo/wo (i.e., vocational colleges/university). This categorization was based on a classification adopted by Statistics Netherlands and used in previous research (e.g., Gijberts & Ledema, 2012; Kortlever & Lemmens, 2012), with the exception of the category no education added in the current study to distinguish parents with no or little experience with formal education. If not indicated by respondents in the parental questionnaire, we used the information provided by the schools’ student administration to determine the parents’ educational level.
**Reading climate at home.** The students’ reading climate at home was assessed through the student questionnaire. Reading climate at home was measured through a combination of three items included in the Monitor the Library at School and five items included in the additional questionnaire. In the monitor, the children were asked how often the following three situations happen: “My mother or father reads to me at home”; “My mother or father talks to me about books”; and “My mother or father accompanies me to visit the library”. The response options offered in 2011/2012 and 2012/2013 differed somewhat from the ones offered in the last school year and were brought on the same 4-point scale (1 = never, 2 = sometimes, 3 = regularly, and 4 = often). The following five items of the additional survey were adapted from measurement instruments previously used in reading research (Kraaykamp, 2003; Leseman & de Jong, 1998; Netten, 2011; Stalpers, 2005; Stokmans, 2007; van Elsäcker-Bok, 2002; Verboord, 2005): “I see my mother or father reading at home”; “My mother or father knows in what book I’m reading”; “My mother or father gives me a book as a present”; “My mother or father tells me which books are fun”; and “When I was a toddler, my mother or father read to me at home”. The four answer categories were similar to those used for the monitor items. The mean score of all these items constituted the final scale used in the analyses (with satisfactory reliability; Cronbach’s $\alpha = .81$), ranging from 1 (never) to 4 (often). As the three items only measured with the monitor during three school years appeared not to build up to a reliable scale on their own, and given that the five items measured with the additional survey were only administered in the last two school years, the reading climate at home variable is only available for these school years.

**Language spoken with parents.** The parental questionnaire was used to assess the language(s) the child speaks with their parents (or caretakers). Respondents were asked to indicate whether their child usually speaks (a) Dutch, (b) both Dutch and another language, or (c) another language with the respondent and the respondent’s partner. Our final variable consisted of three categories: (a) Dutch only; (b) both languages (i.e., both languages with both parents, or Dutch with one parent and another language with the other parent); and (c) non-Dutch language.

**Time.** A time variable was constructed, indicating how many months a child had been attending the (experimental or control) school at the time the measurements of their reading and language skills took place, counted from September 2011 (i.e., the opening of the school library), excluding the summer holidays (July and August). For the experimental school, this factor was used as a proxy for months of availability of the school library, whereas for the control school it was used for comparison, showing the number of months the students had been visiting the control school. The construction of the time variable was guided by the fact that the tests were administered at different time points and the fact that a substantial group of students entered the experimental school during the school year 2012/2013. To construct the time variable, we used the student administration of the schools, listing since when children were enrolled in school.

**ANALYSES**

Multilevel linear modeling was used to answer our research questions to take account of the hierarchical structure of the data, with the repeated measures of vocabulary, reading comprehension, and spelling (level 1) nested in the students (level 2). Multilevel modelling does not require independence of observations, nor complete data over occasions (Hox, 2002; Tabachnick & Fidell, 2007). To account for different intervals between the repeated measures, random intercepts and random slopes were considered for modeling the covariance structure (Snijders & Bosker, 1999).

Different models were tested to answer our research questions. Model 1 addressed the effect of the school library on vocabulary scores (question 1), reading comprehension skills (question 2), and spelling skills (question 3), while controlling for differences between the schools in parental educational level. In this model, an interaction effect between school and the time variable was fitted. This effect parameter indicates whether there was a difference in reading and language skills between the experimental school and control school students over time. A statistically significant interaction effect, with scores of experimental school students increasing more, means there was a positive effect of the school library. Models 2, 3, 4, 5, and 6 assessed whether the effects of the school library differed for categories of parental education level, gender, age, reading climate at home, and language spoken with parents, respectively (question 4). The effect of each factor was assessed in a sequential manner, whereby each effect was adjusted for all other effects added to the model in earlier steps. In each model, it was first examined whether there was a statistically significant main effect of the factor, indicating that this variable was a predictor of the dependent variable. Additionally, for each factor, a three-way interaction effect was fitted with school and the time variable, with a statistically significant interaction effect indicating that the size of the effect of the school library differed for values on this factor.

**RESULTS**

**DESCRIPTIVES**

Table 3 presents the overall means and standard deviations of the observations on the tests assessing the students’ reading and language skills, broken down by school. The vocabulary scores

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Means and SDs for Vocabulary, Reading Comprehension, and Spelling by School ($n = 1064$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill</td>
<td>Experimental school ($n = 532$)</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>176</td>
</tr>
<tr>
<td>Reading comprehension</td>
<td>133</td>
</tr>
<tr>
<td>Spelling</td>
<td>192</td>
</tr>
</tbody>
</table>

* After controlling for differences in parental educational level, the difference between the schools was statistically significant ($p < .01$).

**EFFECT ON READING AND LANGUAGE SKILLS ROUTE TO READING**
ranged from .20 to 4.80, the reading comprehension scores from .40 to 4.90, and the spelling scores from .30 to 5.00, with a higher score indicating a higher proficiency. On average both the experimental and control school scored fairly low on the outcomes. Compared to the national reference group, the students scored substantially below average on the vocabulary and reading comprehension measurements, and just below to substantially below average on the spelling tests. The experimental school scored significantly higher on spelling than the control school, $F(1, 410) = 8.76, p = .003$. However, the mean results for the entire period of the study, as shown in this section, does not give us insight into the development over time. As we are interested in whether or not scores on measures of reading and language ability increase due to (more months of) school library usage, we have conducted multilevel analyses with repeated measures nested within students taking this time factor into account. The findings will be described in the next sections.

**EFFECTS ON VOCABULARY**

To test for an effect of the school library on vocabulary, a model was fitted with an interaction effect between school and the time variable (Model 1, Table 4), indicating whether there was a difference in the development of vocabulary scores between the experimental and control school students. The interaction effect was statistically significant $F(1, 81) = 7.20, p = .009$, with a higher increase in vocabulary scores over time at the experimental school than at the control school. Moreover, regardless of the school, the vocabulary of the students improved over time, as shown by the positive and statistically significant main effect of time, $F(1, 89) = 16.92, p < .001$.

In Models 2 to 6, main effects of parental educational level, gender, age, reading climate at home, and language spoken with parents were added as well as their interaction with time and school (Table 4). There were no statistically significant three-way interaction effects, suggesting that the effect of the school library did not depend on the factors included in the models.

Thus, with regard to our first research question we found a positive effect of the school library on vocabulary, With respect to our fourth research question, we did not find that the effect of the school library on vocabulary differed for categories of educational level, gender, age, reading climate at home, and language spoken with parents.

**EFFECTS ON READING COMPREHENSION**

The effect of the school library on reading comprehension was estimated similarly to vocabulary (Model 1, Table 5). The interaction effect between school and the time variable was not statistically significant, $F(1, 129) = 0.05, p = .816$, meaning that the school library did not have an effect on the students’ level of reading comprehension. With respect to the background factors (Models 2 to 6), we found a statistically significant three-way interaction of school, time and parental education level, with a negative estimate for the experimental school and a positive estimate for the control school, $F(2, 126) = 5.78, p = .004$. This means that at the experimental school, children from lower educated parents showed more improvement in their reading comprehension skills over time, whereas at the control school, students from lower educated families showed less improvement than children with higher educated parents. Furthermore, a statistically significant negative effect of age was found in Model 4, $F(1, 135) = 6.27, p = .013$, indicating that older children scored relatively lower on reading comprehension than younger children.

All in all, with respect to our second research question about the effectiveness of the school library on reading comprehension, our results revealed no effect of the library. With respect to

<table>
<thead>
<tr>
<th>TABLE 4</th>
<th>MULTILEVEL REGRESSION OF VOCABULARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1 (effect library)</td>
<td>Model 2 (effect education)</td>
</tr>
<tr>
<td>Source</td>
<td>$F$</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.31</td>
</tr>
<tr>
<td>Time</td>
<td>16.92***</td>
</tr>
<tr>
<td>School</td>
<td>2.08</td>
</tr>
<tr>
<td>School×Time</td>
<td>7.20**</td>
</tr>
<tr>
<td>Education</td>
<td>1.59</td>
</tr>
<tr>
<td>School×Time×Education</td>
<td>1.31</td>
</tr>
<tr>
<td>Gender</td>
<td>0.09</td>
</tr>
<tr>
<td>School×Time×Gender</td>
<td>0.61</td>
</tr>
<tr>
<td>Age</td>
<td>0.10</td>
</tr>
<tr>
<td>School×Time×Age</td>
<td>0.97</td>
</tr>
<tr>
<td>Reading climate</td>
<td>3.40</td>
</tr>
<tr>
<td>School×Time×Reading climate</td>
<td>2.18</td>
</tr>
<tr>
<td>Language with parents</td>
<td>0.60</td>
</tr>
<tr>
<td>School×Time×Language with parents</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Note: Because of iterative estimation procedures, combined with a relatively small $n$, (little) variations in $p$-values are possible in the different models (1–6) for the variables held constant: time, school, School×Time, and education. *$p < .05$. **$p < .01$. ***$p < .001$. 

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the fourth question it was found that at the experimental school, children growing up in lower educated families over time improved their reading comprehension skills more than children from higher educated parents, whereas the opposite was true for the control school students. Age had a negative effect on the students’ (relative) reading comprehension level.

**EFFECTS ON SPELLING**

The results of the multilevel models for spelling are presented in Table 6. As shown by the non-significant interaction effect between school and the time variable in Model 1, no effect of the school library was found, $F(1, 66) = 0.11$, $p = .744$. The main effect of school was statistically significant, $F(1, 122) = 4.01$, $p = .048$, with students of the experimental school performing higher on spelling than the control school students overall. In the five models with the background variables, no effects of three-way interactions were found, although statistically significant main effects were found for age (Model 4) and language spoken at home (Model 6). The results showed that older children achieved lower (relative) spelling scores than younger students, $F(1, 156) = \ldots$
12.51, $p < .001$. With regard to the main effect of language spoken at home, $F(2, 150) = 3.22$, $p = .043$, it was found that students speaking Dutch at home ($Mean = 2.58, SE = .17$) and students speaking Dutch and another language ($Mean = 2.56, SE = .15$) performed better on spelling than students only speaking in a non-Dutch language with their parents ($Mean = 1.72, SE = .35$).

Thus, with regard to our third research question we were not able to demonstrate an effect of the school library on spelling skills. With respect to our fourth research question, no three-way interactions were found, indicating that the effect of the school library on spelling did not differ for categories of educational level, gender, age, reading climate at home, and language spoken with parents. In general, age and language spoken at home had a main effect on spelling scores.

**DISCUSSION**

The present study aimed to investigate whether an integrated library facility in a Dutch primary school leads to better reading and language skills in students with a non-Western migrant background (grades 2 to 6). This study had a longitudinal quasi-experimental design, involving both an experimental school and a control school, using tests and questionnaires as measurement instruments. Firstly, we analyzed whether the school library had an effect on the vocabulary level of non-Western migrant students. Secondly, we examined whether the school library had an effect on the reading comprehension skills of these students. Thirdly, we tested whether the school library impacted their spelling skills. Fourthly, we explored whether the effects of a school library on the vocabulary, reading comprehension skills, and spelling ability of non-Western migrant students differed for categories of parental educational level, gender, age, reading climate at home, and language spoken with parents.

The results showed that the non-Western migrant students of the two schools differed in their vocabulary level over time, but not with regard to their reading comprehension ability and spelling skills. As expected, students attending the experimental school achieved higher vocabulary test scores over time than the control school. These findings indicate that the school library had a positive effect on the vocabulary of the students, but not on their reading comprehension skills and spelling ability. A possible explanation may follow from the fact that the students of the experimental school were not allowed to take home the school library books they borrowed during school hours. Possibly therefore, they did not show an increased reading frequency over time – as was found in our earlier study (Chapter 3) – while more reading is suggested to be important for improving language and reading skills (Broekhof, 2015; Krashen, 2004b; Krashen, Lee, & McQuillan, 2012; Mol & Bus, 2011a, 2011b). The positive effect of the school library on vocabulary may have to do with the reading promotion lessons that were part of the school library program, which incorporated elements that were positively related to vocabulary (more than to reading comprehension and spelling), such as reading aloud to the children and creating a word web together (Broekhof, 2011b; Vernooy, 2012). Moreover, teachers of the experimental school – who had access to the large collection of the school library – more often read a book aloud than control school teachers when teaching world orientation subjects in class. Perhaps it may also be argued that free reading in class, which happened at both schools, was more strongly related with the students’ vocabulary size than with their reading comprehension and spelling skills, given that only their vocabulary level increased over time regardless of the school – albeit the effect was significantly stronger at the experimental school where students spent slightly more time on free reading and selected books from a wider collection assisted by a reading and media coach. This calls for further research.

With regard to our fourth focus, we found that the effects of the school library on the students’ vocabulary level and spelling skills did not differ for categories of parental educational level, gender, age, reading climate at home, and language spoken with parents. However, with regard to reading comprehension, the results showed that experimental school students growing up in lower educated families improved their reading comprehension skills more over time than children from higher educated parents, whereas control school students from lower educated families showed less improvement over time than children with higher educated parents. This suggests that a school library may have the ability to counter a so-called Matthew effect (Cunningham & Stanovitch, 1998), where differences between disadvantaged and advantaged children increase over time.

In general, there was a main effect of age on the students’ reading comprehension skills and spelling skills, and language spoken at home had an effect on spelling scores. The results showed that older children achieved lower reading comprehension scores and spelling scores (which were already normed by grade/group, and therefore roughly by age) than younger students, as compared to the national population of students in the Netherlands, on which the relative scores are based. Thus, as the students progressed through primary school, their performance in reading comprehension and spelling declined compared to the national reference group. Previous Dutch research on the development of the language disadvantages in migrant students during primary education indicated that their delay has diminished somewhat in the last year of primary school (Driessen & Merry, 2013; Guldemond & Bosker, 2006; Roeleveld, Driessen, Ledoux, Cuppen, & Meijer, 2011). This does not seem to be true for the two schools in our study given the negative effect of age, perhaps because of the large number of disadvantaged migrant students who started with a low level of language and reading skills at the schools (Guldemond & Bosker, 2006). With regard to the effect of language spoken at home, as expected (Herweijer, 2009; van Weerden & Hemker, 2012), students only speaking in a non-Dutch language with their parents performed worse on spelling than students speaking Dutch at home and students speaking Dutch and another language.

Although, given its focus on non-Western migrant students in particular, the present study contributes to the literature on the effectiveness of school libraries, there are several limitations...
that should be noted. For example, the number of participants in the present study was limited and we controlled for differences between the schools as they were not completely similar regarding the students’ background characteristics. This means that there may be effects of the school library (and background factors) for non-Western migrant children that could not be discerned in the current study. It should also be kept in mind that the implementation of the school library program in the experimental school could be improved. As previously mentioned, the library books borrowed during school hours were not allowed to be taken home – where the reading climate was not that favorable in most families – while providing reading materials that can be taken home is an important aspect of the national program the Library at School (Bron & Langendonk, 2015). In addition, as in many Dutch schools, reading materials were also present at the control school, although the school did not participate in a school library program and its collection was smaller, less up-to-date, and less varied. Perhaps more effects of the school library would be found if there had been a larger difference in the presence of books between the two schools. Moreover, we cannot rule out that differences in other factors, next to the school library, may have contributed to the (development and differences) in language and reading test scores, such as the reading and language lessons at the schools, although the differences between the schools were limited. Furthermore, the variables parental educational level and reading climate at home were measured through a parental survey and student questionnaire, respectively. We cannot be sure that every parent filled in the self-report with a complete understanding and that the students’ answers completely covered their actual reading climate at home. For the students a bias may have occurred caused by factors such as social desirability and insufficient understanding. However, this applies to both schools, the reliability of the reading climate scale was satisfactory, and literature on survey research with children has suggested that generally from 7 years onward, children can complete a self-report (Borgers & Hox, 2002; Borgers, Hox, & Sikkels, 2004; de Leeuw, 2011).

Overall, the results of the present study among primary school students with a non-Western background showed a positive effect of the school library on vocabulary, and effects were found for parental educational level, language spoken with parents, and age. Students attending the school with the library facility attained higher vocabulary test scores over time than the control school students, suggesting that the school library can contribute to narrow the achievement gap between advantaged and disadvantaged students. In line with this, at the experimental school, students from lower educated families improved their reading comprehension skills more over time than students with higher educated parents. Students speaking Dutch or Dutch and another language with their parents achieved higher spelling scores than students only speaking in a non-Dutch language with their parents, and, compared to the national reference group, younger children performed better on reading comprehension and spelling than older students. No effects of the school library were found for reading comprehension and spelling skills. However, a more optimal implementation of the school library program might well have led to stronger effects. In order to get a better understanding of the effectiveness of a school library for migrant students, future research should focus on the effects of an implemented school library program that meets all requirements. Future research involving a larger and more comparable sample is also needed to enhance power, and it would be interesting to include native students in the sample as well to compare the effects of a school library for non-Western migrant children and native Dutch children. Furthermore, research on the relationships between reading behavior, reading attitude, and reading and language skills of non-Western migrant students may also provide us with more insight into the potential role of school libraries in countering the ethnic inequality in school performance.